EDITORIAL

Michael H. Glantz
Center for Capacity Building, National Center for Atmospheric Research

Hurricane Katrina rekindles thoughts about fallacies of a so-called "natural" disaster

Introduction

My brother recently reminded me that thirty years ago I wrote an article about drought in West Africa. I called it "Nine Fallacies of a Natural Disaster" (Glantz, 1976). In light of the impacts of Hurricane Katrina on the Gulf Coast states, he proposed that I revisit these fallacies. For the record, a fallacy is a plausible but unsound reasoning that some people may think is true, but for the most part is either not true at all or is partly true only in certain circumstances.

Until Katrina and the ensuing cascade of negative impacts struck, it had not crossed my mind to look at other disasters in terms of fallacies. Also, I am not a hurricane expert. However, like millions of American citizens following the plight of victims of Katrina and the crumbling levees, I have been glued to newscasts about the horrifying situation. In fact, I have had many discussions about it with coffee salespeople at the local Starbucks, cashiers in supermarkets, clerks in computer stores, and numerous others. The disaster in New Orleans and along the Gulf Coast of Mississippi and Alabama — and now the abysmal government response to it is on everyone's mind. It is THE ultimate reality show.

Taking my brother's advice, I did some thinking about what fallacies have reappeared in Hurricane Katrina's wake. Here is my list, followed by a brief discussion of each item.

Fallacies

1. Poor people want to live in dangerous places
2. Technology is the answer (but what was the question?)
3. All's well that ends well
4. Education is the answer
5. Forewarned is forearmed
6. People learn from their mistakes
7. Global warming has nothing to do with disasters
8. The Third World is more vulnerable to hazards than the rich countries
9. Government leaders say what they mean and mean what they say
10. America does not need help from other countries to cope with its disasters
11. The impacts associated with Hurricane Katrina were the result of a natural disaster

Fallacies Discussed

1. Poor people choose to live in dangerous places

People live in places at elevated risk of natural hazards for a variety of reasons, many beyond their personal control. Some individuals do it because of the surrounding vistas. These people, generally speaking, have funds to rebuild if their property is damaged. They also have the wherewithal to "get out of town in a hurry" in the event of untoward circumstances. We all saw on the television news the lines of cars and trucks leaving New Orleans the day before the hurricane was due to arrive. However, many of the city's residents could not leave: No cash in hand, no access to cash, no money for gasoline, no way to move possessions, nowhere to go, and so forth. Complicating the responses of those who were at-risk, there had been several recent hurricane warnings and close calls (such as Hurricane Georges in 1998). For a while before Katrina struck, there was uncertainty as to the exact location of landfall, and the impacts were not expected to be very threatening. So, many "stayed the course" to a tragic end. The combination of psychological, financial, and political factors—together with a direct hurricane hit, the breakdown of the levees, and the subsequent cascade of disasters underscored the vulnerabilities of the poor, the elderly, children, and racial minorities. It also underscored the importance of educating people about the range of local hazards that they may face. Many of the at-risk people living along the Gulf Coast do not choose to live in harm's way; they are forced to by circumstances they cannot control.

2. Technology is the answer

Americans in general (myself included) tend to have a blind faith in technology. We believe that a high-

tech solution can be found to save us from any problem. And, to date, technology has frequently come to the rescue. Often, however, technological fixes are used as band-aids, as temporary solutions to chronic underlying problems. They do not erase the problems, but rather circumvent them—at least for a while. A famous economist once suggested that technology actually helps to increase the total amount of misery because when problems eventually reappear, there are more people around to be harmed.

Now, I tend to believe that technology is neutral. What determines whether it is a positive or a negative tool is how, and whether, it is used effectively. As we are seeing, once the emergency response phase to Hurricane Katrina ended and reconstruction began, debates ensued about whether the levees should have been reinforced according to plans that were not only on the table, but already being undertaken. Clearly, the need to shore up the levees had been recognized at all government levels, local to national. The citizens in the Gulf States elected their official representatives and had the right to expect them to operate in society's best interest. Nevertheless, an available, effective technological solution to the flooding expected to accompany a Category Five hurricane was not used. The funds that the U.S. Congress had authorized to improve the levees had not been made available. Technology may prove to be the answer, but one must ask, "What is the question?" Should that question be about decision-making related to the use of technology?

3. All's well that ends well

Different perceptions had already appeared within the first few weeks of Katrina and its associated aftermath. Some official statements were chosen to put a positive spin on the government's hesitant response to thousands of victims' immediate needs. The government initially suggested it did the right things, given the uniqueness of the event, the lack of expectation of flooding, and the severity of the cascade of impacts. Government spin doctors have claimed that the number of people affected was surprising, as well as unexpected, that the actual strength of the storm was not forecast, that National Guard units were dispatched as fast as possible, and that neither state nor city officials had asked for assistance.

Toward the end of the first week, after Katrina had made landfall, it seemed that the Federal government was starting to respond effectively. Evacuation from the convention center and the football stadium was in progress, to some extent. Deliveries of food and water were increasing. The National Guard and regular Army units were policing the streets. People were being airlifted to cities around the country and receiving care. So, it seems that all is ending well. But how did we get here?

The response was poor prior to landfall. The response was poor during the hurricane. The response was sluggishly slow during the first days afterward. At least a thousand people are dead. Hundreds of thousands are homeless and penniless. Families have been devastated. People were still being plucked off of rooftops after several days. Why so sluggish? For survivors, perhaps "all's well that ends well" are comforting words. Not so, though, for those who suffered or died in the earlier days, when quick responses from the President, the Secretary of Homeland Security, and the head of the Federal Emergency Management Agency might have alleviated the death, destruction and misery.

While the adage "all's well that ends well" sounds comforting, it suggests another problematic adage—that the ends justify the means.

4. Education is the answer

Educating the public is a very important and a very difficult task. This is true whether you are talking about K-12 kids, college students, older citizens enrolled in over fifty learning activities, or the general public. For some reason, it seems especially hard to teach people about the specific aspects of hazards that they might someday face. However, education is not a process that ends when you reach a certain grade or age, or attain a certificate or degree. It is a life-long learning process, which means that it requires repetition, as well as additional education on issues about which new information becomes available. It is not just an intergenerational problem. It is a problem that can also be addressed by passing on knowledge—in this case disaster-related—within today's generations. Continual reminders are needed of the risks people live with at the local level. Following Hurricane Camille in 1969, the National Oceanic and Atmospheric Administration printed brochures about how to prepare for hurricanes. These are just the tip of the proverbial iceberg of more than a century of warnings and educational material about coping with hurricanes along the Atlantic and Gulf coasts.

5. Forewarned is forearmed

"Forewarned is forearmed," an old adage that speaks well to early warnings and to knowledge in general. It is based on the popular belief that more information about the future enables at least partial preparation.

The projections and speculation about Hurricane Katrina's category, landfall location, and potential damage were, in essence, forewarnings. However, those with the power to encourage or force people to move out of harm's way did not heed them. Warnings are not enough. Actions must take place in response to them. A reliable forecast of a hurricane's strength and trajectory is only one part of a more encompassing warning system, which also encompasses the effective use of that forecast to take appropriate responses to the hazard that has been forecast.

6. People learn from their mistakes

That people learn from their mistakes is generally accepted as a truism supported by the saying, "Once burned. Twice shy." Unfortunately, all too many disaster response examples from different countries, cultures, and times suggest that lessons are indeed identified, but not necessarily learned. By learned I mean that the lessons would have to influence future behavior in some significant way. With regard to disasters, the public, as well as disaster experts, identifies problems encountered from warning to reconstruction that hinder effective response, and draw up

plans to overcome them. However, reviews of the reconstruction phases that follow major disasters show that many of the lessons that had been identified and acknowledged remained unapplied. Any one of a variety of reasons—excuses really—from political to economic to cultural, are used to explain why known solutions to expectable, recurrent hazards have not been implemented. The bottom line message is that while people and societies sometimes do learn from their disaster-related mistakes, often they do not.

We must not assume that people will automatically do the right thing by learning from their own experience or that of others who had faced similar situations elsewhere or in earlier times. People have to be encouraged to apply the requisite lessons. We have to break the cycle of denial, as people seek to get back to a semblance of normal, when it was "normal" that had put them in harm's way in the first place.

7. Global warming has nothing to do with disasters

Some researchers believe that the frequency, as well as the magnitude, of climate and weather-related extreme events will increase as a result of the warming of the earth's atmosphere. Others suggest that there is no definitive proof. They argue that records are being set every year, and that we are to expect such extreme blockbuster episodes even under normal climate conditions. Climate varies from seasons to years and decades and centuries and so on. Systematic observations over long time periods are hard to come by. Scientific uncertainties notwithstanding, mounting evidence suggests that stronger extremes are linked to a warmer atmosphere. Whether these deadly extremes, like Hurricane Katrina, are the result of natural variability or human-induced changes to the atmosphere's chemistry provides little comfort to the victims. In either case the "precautionary principle," as well as the historical hurricane record, needs to be taken into account.

Large computer models have produced many climate change scenarios for the year 2050. They are suggestive and illustrative, but not definitive. Researchers on social issues are then expected to determine how best society might prepare for and react to such an eventuality. However, Hurricane Katrina—and Ivan, Georges, Mitch and Andrew—have underscored the fact that societies are not well prepared to cope with climate, weather, and water extremes under present conditions. In this regard, improvements in the way we deal with contemporary hazards and disasters can help to prepare future generations.

Bill McKibben (2005) recently wrote in *Grist Magazine* that,

> [N]o single hurricane is 'the result' of global warming , but a month before Katrina hit, MIT hurricane specialist Kerry Emanuel published a landmark paper in the British science magazine Nature showing that tropical storms were now lasting half again as long and spinning winds 50% more powerful than just a few decades before. The only plausible cause: the ever-warmer tropical seas on which these storms thrive.

8. The Third World is more vulnerable to hazards than the rich countries

A prevailing view among climate scientists and policy people (both those who believe in global warming and those who do not) has been that developing countries are more vulnerable to climate change impacts than are the industrialized countries. I continue to believe that this belief is unrealistic. I think it relates more to the self-deception of people in rich countries who are surrounded by technologies that they think can protect them, technologies that those in developing countries can only dream about.

We have watched from a distance as superstorms of one kind or another have impacted societies in developing countries. A recent geophysical event (not weather-related) was the December 26, 2004 killer tsunami in the Indian Ocean, when hundreds of thousands perished. Another was Hurricane Mitch in late 1998, with over 17,000 dead. Yet another was the 1999 SuperCyclone in Orissa, India, with 20,000 dead. Super Typhoon Maemi hit South Korea in 2003. The number of blockbuster, record-setting, killer natural disasters seems to be increasing since the late 1980s, including tropical storms, winter storms, fires, and the biggest most damaging El Niño event of the century in 1997-98.

In most of these cases we have watched on television or viewed in newspapers poor people in great numbers sifting through the debris that was once their homes for anything that they could salvage. A sad difference between poor and rich countries is that people in poor countries are accustomed to adversities and are often left on their own to cope with the devastating deadly impacts of natural and other disasters. In the rich countries, however, people expect, and usually get, help from their governments because they have resources and money that many poorer countries do not have. Rich countries, however, have much lower thresholds of tolerance for inconvenience.

This argument about the relative vulnerability of rich versus poor countries has been difficult to prove—until now. Hurricane Katrina in late August 2005 slammed into the Gulf of Mexico coasts of Louisiana, Mississippi, and Alabama and exposed just how vulnerable all societies are, regardless of their level of technological development.

9. Government leaders say what they mean, and mean what they say

It is not possible, when forecasting, as well as when coping with, disasters and their aftermaths to get through the entire early warning process perfectly. It is inevitable that some part of the disaster early warning system will fail, and those in charge will attract blame. Even if some of that blame is not deserved, it is probable that some of it will be. Nevertheless, those in power will unleash what are called "spin doctors" to put a positive light on the entire process, from hazard forecast, to the response, to its impacts, to reconstruction. Platitudes

invariably abound about the fantastic job done by governments at all levels. However, close scrutiny reveals half-truths, cover-ups, attacks on critics of the disaster response.

In the case of Hurricane Katrina it remains to be seen if the Federal government follows through on its various pledges to help the victims, rebuild the cities, and protect them from future disasters. Meanwhile, the spin doctors have praised the government for its "quick response to the victims needs" although public surveys indicate that few members of the general public believe those claims. The battle that has been playing out in reviews and reports from, and about, the relevant government agencies from local to national is between "disaster management" and "disastrous management."

10. America does not need help to cope with its disasters

In my lifetime, America has always been a superpower, and has acted as such. It had been one of the political poles in a bipolar world, opposing the Soviet Union. We were the leaders, often with troops, in foreign conflicts. Representing the West, the United States had dominated the workings of the United Nations General Assembly and the Security Council, often (though not always) a leader in calling for aid to victims. It offered food aid to Cuba, considered a major political enemy, during recent drought-related severe food shortages.

I had never imagined, based on the past few decades of dealing with various types of disasters, that I would see such a dire situation in the United States following a natural disaster. Several countries—including Cuba and Venezuela which the United States consider unfriendly—offered assistance, especially during the first few days following the hurricane's landfall. To me it was at first embarrassing that foreign governments, even governments of developing countries, would feel the need to offer whatever disaster assistance they could afford to one of the seemingly strongest and wealthiest nations on earth. But they did, and sadly their offers of assistance were really essential in the initial week following Katrina.

11. The impacts associated with Hurricane Katrina were the result of a natural disaster

Hurricane Katrina reached Category Five status at or about the time it made landfall in Louisiana, Mississippi, and Alabama. It was called a massive hurricane, a top-strength storm, an incredibly strong storm, and a superstorm. Such a natural hazard was sure to have brought about some level of death and destruction. However, the damage from this event was much higher than even the experts expected. Much of the reason for extreme levels of death, destruction, and human misery rests with society's contribution to the adverse impacts of the naturally occurring hurricane. The poor, for example, often live in high-risk locations relative to likely natural hazards. The levees in the New Orleans area were known to be in need of urgent repair, as well as upgrading. The impacts of a Category Five hurricane hitting New Orleans specifically had been projected in many scenarios over the years. This event was foreseeable. In fact, there had been several near hits in the past few decades, raising the question about which of the deadly horrendous impacts of this "natural" disaster should be blamed on nature, and which on societal—especially political—decision making. To be sure, there will be considerable discussion for the next several years, finger pointing and blame, as well as spin doctoring and claims of success, but in America there is a popular political expression that the "buck stops at the US President's desk."

Concluding Comments

In sum, the reason for pointing out what I consider to be fallacies or misconceptions is that even if such views are proven to be incorrect, the actions taken by individuals and governments based on those views will be real and will have real consequences. When it comes to disasters, people have to be careful about making sweeping generalizations, because they will not necessarily be evaluated for their validity. Myths of all kinds, like unfounded rumors, are very misleading and can have dangerous long-lasting consequences for societies, as well as for the victims of natural hazard-related disasters in the distant, as well as near-term, future.

References

Glantz, M.H. (Ed.). 1976. Nine Fallacies of a Natural Disaster: The Case of the Sahel. In M.H. Glantz (Ed.), *The Politics of a Natural Disaster: The Case of the Sahel Drought*. pp. 3-24. New York: Praeger.

McKibben, B. 2005. Meet the New Loss: Hurricane Katrina Brings a Foretaste of Environmental Disasters to Come. *Grist Magazine* September 7, available online at http://www.grist.org.

About the Author

Michael Glantz is a Senior Scientist at the National Center for Atmospheric Research where he headed the Environmental and Societal Impacts group for almost two decades. His professional activities have focused on the interactions among climate, environment, and society. His most recent book is *Climate Affairs: A Primer* (Island Press, 2003). His website is www.fragilecologies.com and he can be contacted at NCAR, PO Box 3000 Boulder, CO 80306 USA (email: glantz@ucar.edu).